

REMARKS

Claims 1 and 22 have been amended, and claims 60-71 have been added. No new matter has been added by virtue of the amendments. For instance, support for the amendments appears e.g. at pages 6 and 8 of the application.

Claims 1 and 22 were rejected under 35 U.S.C. 103 over Knors (U.S. Patent 5800963) in view of Brunsvold et al. (U.S. Patent 5338818).

Claims 1 and 22 were rejected under 35 U.S.C. 103 over Foster et al. (U.S. Patent 6165682) in view of Knors et al. (U.S. Patent 5800963).

Claims 1 and 22 were rejected under 35 U.S.C. 103 over Motoyama et al. (EP 408334) in view of Knors et al. (U.S. Patent 5800963).

For the sake of brevity, these three Section 103 rejections are addressed in combination. Such a combined response is considered appropriate because, *inter alia*, each of the rejections relies on the Knors citation.

In advancing each of the rejections, the position is advanced that it would have been obvious to utilize the Knors composition with the resist compositions of Brunsvold et al., Foster et al. or Motoyama et al., and that proposed combination would have rendered Applicants' claimed invention obvious.

At page 5 of the Office Action, it is specifically acknowledged that "[t]he Knors reference fails to teach or suggest the presence of a silicon-containing component."

Nevertheless, the position is taken that “[i]t would have been obvious to one of ordinary skill in the art to prepare the material of Knors choosing to replace the novolak resist of Knors with the silicon-containing resist of Brunsvold which is taught to increase the etch resistance of the resist” See paragraph bridging pages 6-7 of the Office Action.

Similarly, at page 10 of the Office Action, it is stated:

“Given the teachings of the references, it would have been obvious to one of ordinary skill in the art to prepare the material of Foster choosing to employ the polymers of Knors et al. to increase the dry etching properties of the layer, with expectation of achieving a material having high resolution in DUV lithography.”

Then again, at pages 10-11 of the Office Action, the following is stated:

“While [Motoyama et al.] teaches that any suitable polymers may be employed for the underlayer of the bi-layer resist system, and provides examples, the reference is silent with respect to additional components of this underlayer.

* * *

“Given the teachings of the references, it would have been obvious to one of ordinary skill in the art to prepare the material of Motoyama choosing to employ the polymers of Knors et al. to increase the dry etching properties of the layer, with expectation of achieving a material having high resolution in DUV lithography.”

Each of the rejections is traversed.

Respectfully, the instant rejections are the improper result of hindsight reconstruction of Applicants’ claimed invention. No suggestion would have existed to so carefully select isolated aspects of the cited documents and then combine those elements as has been proposed. See Section 2143.01 of the Manual of Patent Examining Procedure.

In the instant rejection, the linchpin citation – the Knors document – does not disclose use of the reported composition with a photoresist that contains a Si-material, or that such a combination of materials might be useful.

Persons skilled in the art do not readily expect that a bottom layer used with a novolak photoresist as reported in Knors would be useful with a Si-photoresist as reported in the other cited documents. Indeed, no evidence has been made of record to substantiate the desirability of combining such materials as has been proposed by the instant rejection.

Moreover, even if one assumes for argument's sake that the proposed combination of documents may be legitimate, none of the cited documents, whether considered alone or in combination, disclose an organic underlayer composition with an above photoresist composition as Applicants claim.

Thus, Applicants' claims 1 and 22 (the only pending independent claims) each calls for:

an organic underlayer composition that comprises (i) a first resin that comprises phenol groups and (ii) a second resin that is distinct from the first resin and comprises one or more anthracene groups;

a positive-acting photoresist composition coating layer over the underlayer composition, the photoresist comprising one or more resins that comprise Si groups, phenolic groups and photoacid-labile groups

These organic underlayer compositions and photoresist compositions are preferred aspects of Applicants' invention. See, for instance, the present application at page 4, lines 19-26; page 6; and the original claims.

The linchpin Knors document does not disclose an underlayer composition that comprises multiple resins as Applicants claim. The Knors document also does not disclose use of a crosslinker component as recited in Applicants' claims 60-63 and 66-69, or use of an acid or acid generator compound as recited in Applicants' claims 64 and 70.

The Brunsvold document is similarly deficient and does not describe an underlayer composition that comprises (i) a first resin that comprises phenol groups and (ii) a second resin that is distinct from the first resin and comprises one or more anthracene groups, as Applicants disclose and claim.

In fact, Brunsvold actually *teaches against* Applicants' invention and reports placing an anthracene compound in a photoresist composition rather than an underlayer. See Brunsvold at column 3, lines 29-39.

Clearly, then, contrary to the premise of the instant rejection, since Brunsvold reports of anthracene in the resist itself, the skilled worker would not utilize with such a resist an underlayer material that contains anthracene as reported in Knors.

The Foster document is also distinct and does *not* disclose, *inter alia*, a photoresist composition that includes a resin having phenolic groups.

In contrast, Applicants claim systems where the photoresist comprises a resin comprising phenolic groups.

The Motoyama et al. is also quite distinct and reports a certain **negative-acting** photoresist. See, for instance, Motoyama et al. at page 5, line 37, where formation of a negative pattern is disclosed.

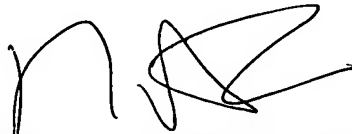
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In contrast, Applicants claim a positive-acting photoresist.

In view thereof, reconsideration and withdrawal of the rejections are requested.

It is believed the application is in condition for immediate allowance, which action is earnestly solicited.

Respectfully submitted,

A handwritten signature in black ink, appearing to be 'P. Corless', with a stylized flourish at the end.

Peter F. Corless (Reg. 33,860)
EDWARDS ANGELL PALMER & DODGE LLP
P.O. Box 55874
Boston, MA 02205
(617) 439-4444